Newsletter of the National Biological Information Infrastructure

nbii Access

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NBII Selects SMMS Metadata Creation Tool

After careful review, the National Biological Information Infrastructure (NBII) has selected the Spatial Metadata Management System (SMMS) as the most appropriate tool to use for metadata creation (the NBII is a Web-based system that provides access to biological data and information on the nation's biological resources). SMMS will replace MetaMaker as the metadata tool of choice to be used in compliance with current metadata standards.

Metadata answer user questions about where data originated; what is the purpose of the data; what is the scale of the data; what attributes do they contain; what steps were followed to create the data; how are the data projected; and how can the spatial data be obtained. Metadata serve as the card catalog in the NBII library of the nation's biological data and information.

The SMMS family of metadata solutions consists of SMMS, SMMS for GeoMedia, and the GeoConnect Geodata Management Server. Produced by Intergraph, SMMS enables users to create, edit, and query the metadata which is integrated with all of Intergraph's GeoMedia-supported data types.

Background

In October 1999, the Federal Geographic Data Committee (FGDC) officially endorsed the Biological Data Profile (BDP) of the Content Standard for Digital Geospatial Metadata, FGDC-STD-001.1-1999, which is based on the 1998 FGDC Content Standard for Digital Geospatial Metadata. The BDP replaces the 1995 NBII biological metadata standard and provides users with additional elements to document biological and geospatial data sets. The U.S. Geological Survey (USGS)-Biological Resources Division

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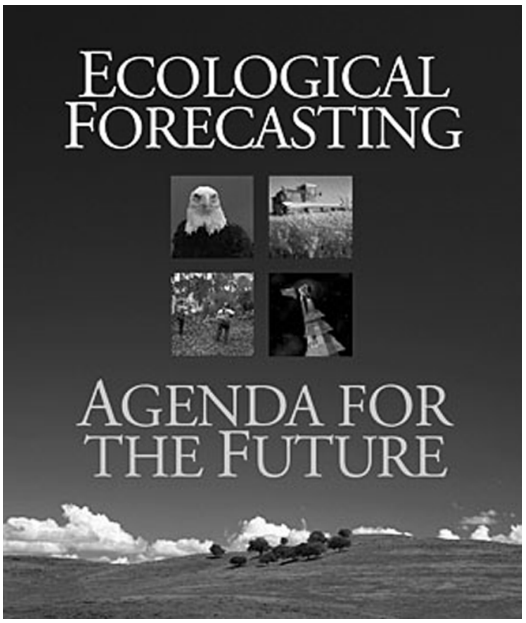
NBII Featured in New Publication on Ecological Forecasting



The NBII is highlighted in *Ecological Forecasting: Agenda for the Future*, a new publication produced by the Committee on Environment and Natural Resources, Subcommittee on Ecological Systems (CENR-SES).

This educational piece focuses on ecological forecasting and its potential to help resource managers and others enhance the way they anticipate and manage ecosystem change. Ecological forecasting, an emerging field, predicts the effects of biological, chemical, physical, and human-induced changes on ecosystems and their components. These forecasts do not guarantee what is to come; instead, they offer scientifically

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NBII Featured in New Publication on Ecological Forecasting
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sound estimations of what is likely to occur.

The NBII — a Web-based system that focuses on accessing and integrating biodiversity and ecosystem information — will be essential for ecological forecasts.

The brochure became available in October. If you would like a print copy, contact:

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You can access the online version of the brochure at <http://www.nbii.gov/about/pubs/efbrochure/index.html>.

Other agencies involved in the federal interagency CENR-SES include the National Science Foundation, National Oceanic and Atmospheric Administration, Department of Energy, U.S. Department of Agriculture, Environmental Protection Agency, NASA, and the Smithsonian.

Top: Forecasts of ecosystem impacts of natural variability and human interactions will help sustain the enjoyment of our healthy natural ecosystems.

Right: Land and resource managers make crucial decisions that affect the well-being of ecosystems for decades to come. Good forecasts of the consequences of those decisions will lead to better-informed decisions.

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Be sure to check out *Access* on the Web at <http://www.nbii.gov/about/pubs/news>.

Please direct your general questions about the NBII, including partnership opportunities, to:
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UPDATE

Electronic or Print *Access*?

We want to take a moment to remind readers that *Access* is available as both a printed publication and online as an electronic document. The location of the online version of *Access* is noted in the masthead (see below, at left) of each issue: <http://www.nbii.gov/about/pubs/news/>.

If you would prefer to read only the online version from now on, just send an e-mail stating that to <ron_sepic@usgs.gov>, and we'll remove your name from the standard *Access* mailing list. We'll be setting up a listserv to notify these *Access* subscribers when future online issues are ready — with a link to the online version — so they'll be able to stay up-to-date on NBII developments without adding to their incoming snail mail. It's your call!

NBII Selects SMMS Metadata Creation Tool
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(BRD) and the NBII Program have supported a metadata creation tool called MetaMaker, which was developed by the USGS Upper Midwest Environmental Sciences Center (UMESC) in 1995. MetaMaker is based on the 1994 FGDC geospatial metadata standard and the 1995 NBII biological metadata standard. Today, as a result, NBII users do not have a metadata creation tool that meets current standards.

Upgrading to a New Standard

To address this issue, the NBII National Program Office convened a team whose members have metadata responsibilities and expertise to review commercial, off-the-shelf software and determine if any packages met NBII requirements, including compliance with the BDP. The team reviewed each software package based on such criteria as standards compliance, issues/business practices, usability, technical infrastructure, meetings with vendors, and in-depth reviews of the software.

Sharon Shin, NBII National Metadata Program Manager and NBII Implementation Coordinator, explains, "The NBII conducted a metadata tool survey to investigate available metadata tools and their ability to create compliant Biological Data Profile metadata. The NBII is required to purchase commercial, off-the-shelf tools if a commercial tool exists and meets NBII needs. Several tools were reviewed and tested. The tool review panel determined that SMMS was the most appropriate tool among the field."

SMMS will replace MetaMaker as the metadata tool of choice to be used in compliance with current metadata standards.

Also reviewed by the team of experts were MetaStar (Blue Angel Technologies), Precipio (Compusult, Ltd.), ArcCatalog (ESRI), EZMeta (Gannett Fleming), and M^{3}Cat (Intelec). The team members who reviewed the software tools were Diane Schneider, USGS Midcontinent Ecological Science Center; David Hansen, USGS Upper Midwest Environmental Sciences Center (UMESC); David Bergstedt, USGS UMESC; Vishwas Chavan, National Chemical Laboratory (Pune, India); Cheryl Solomon, NASA-Global Change Master Directory/USGS-Biological Informatics Office (BIO); Susan Stitt, USGS Center for Biological Informatics (CBI); Jennifer Gaines, USGS-BIO; and Sharon Shin, USGS-CBI.

After a thorough evaluation of the commercial tools on the market, the team of experts concluded that SMMS would best serve the metadata needs of the USGS-BRD and NBII programs. According to Shin, SMMS offered an optimal user-friendly design. "The SMMS tool operates under a folder-type design," Shin said. "Several folders appear on the bottom of the screen where each folder contains fields to be entered. Should the operator try to enter an erroneous information type, the tool will send the operator an error message. SMMS also lets you create FGDC- or BDP-compliant metadata."

To date, each USGS-BRD center has been allocated one license gratis from the NBII. Most of those licenses have already been distributed. NBII partners can take part in an arranged purchase price by contacting Sharon Shin at 303/202-4230 or <sharon_shin@usgs.gov>.

You may recall reading about the upcoming Ecological Information Network in the Spring 2000 issue of *Access*. Today, the EIN is a reality and is available through the NBII at <http://ein.nbii.gov/>. The EIN — an online, electronic directory designed to provide rapid contact with ecologists — has been developed jointly by the NBII and the Ecological Society of America.

Nodes in the News

The creation of regional, thematic, and infrastructure NBII nodes has been a significant development this year. These newsmaking nodes are interconnected entry points that, taken together, are forming the NBII. The nodes are being developed in coordination with various partners around the country. This year Access *has devoted several issues to reporting on specific node(s). In this issue, we continue profiling the new NBII nodes.*

The Northern Rockies Information Node

The view from one of the country's most scenic regions has been vastly improved with the development of the Northern Rockies Information Node. This node will provide access to scientific information about the biological and natural resources on public lands in the region from the Rocky Mountain Range in Wyoming north into Canada – including the Greater Yellowstone Ecosystem and the area around Glacier National Park known as the Crown of the Continent. Developed as a joint venture of Montana State University and the USGS Northern Rocky Mountain Science Center, the node will complement a wide range of efforts by agencies and institutions to serve regional information through geographic information systems.

Conceived as a virtual meeting place to understand and work toward solutions to resource management challenges for public lands in the Northern Rockies, the node will focus initially on the development of selected data sets and Web-based tools that address readily identifiable needs for natural resource management. These include regional climate data, keys to diverse sets of data related to the Greater Yellowstone Area, and digital maps that provide a spatial context for the data. Outreach and educational values of the node will be developed and disseminated through the university's Burns Telecommunications Center and Big Sky Institute. In addition to increasing the utility of both historical and newly collected data, the node will provide decision support tools to address specific management and science needs of partners and clients.

Trout Lake.

Who will benefit from the node? Academic institutions, non-governmental organizations, and government agencies that conduct scientific investigations relevant to the management of natural resources on these lands. The people of Montana, Wyoming, Idaho – and the nation — will also benefit from educational tools and knowledge provided through the node. Collaboration in building the node will be extended to state and federal natural resource agencies, county governments, and non-federal entities, as well as other universities in the region. Natural resource-based private industries will also be sought as partners in developing the node.

A complete description of the node can be found at <http://www.nbii.gov/about/partner/nodes/gtr_yellowstone/rockies_final.html>.

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Nodes in the News
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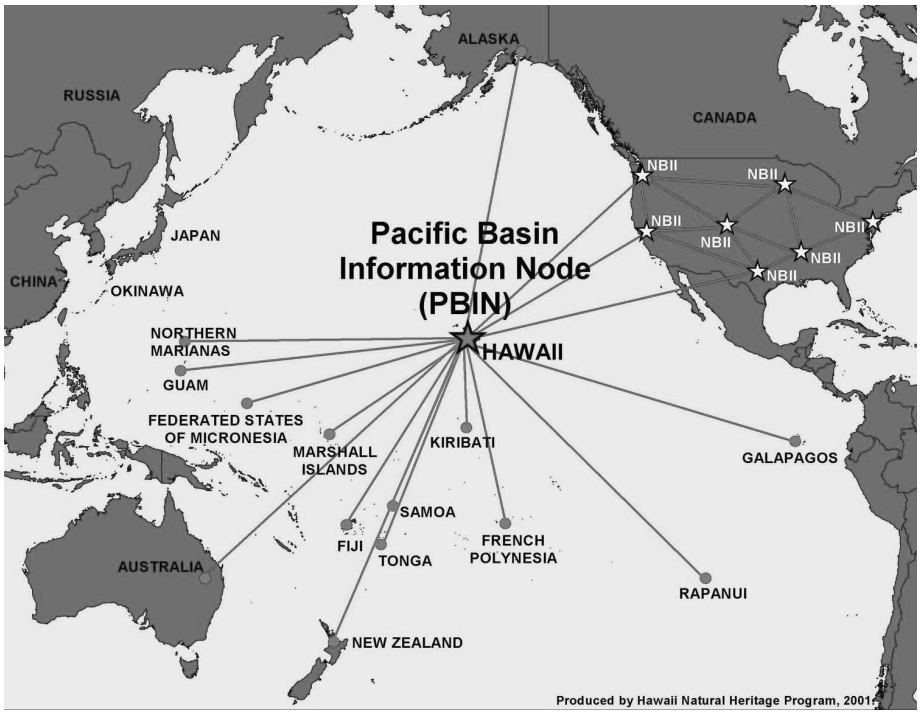
The Pacific Basin Information Node

The Hawaiian Islands have always been at the forefront of biodiversity research. This is because they are the most isolated islands on Earth and they contain nearly all the Earth's climates within a very small landmass. Thus, they are a "natural laboratory." This same isolation however, has proved to be a double-edged sword for the island's biota. By being isolated, the biota were shielded from external influences, yet, because of this protection, island biota may have evolved in such a way that they are more susceptible to outside perturbations. Consequently, the islands suffer from many threats to their biodiversity.

To address science on and management of Island biodiversity, particularly in the Pacific Basin, several key science organizations have teamed up to create the Pacific Basin Information Node (PBIN). A complete description of the node can be found at <http://www.nbii.gov/about/partner/nodes/pacific_basin/pbin_final.html>.

The core team that comprises the node includes federal partners (USGS, the National Park Service, and the Fish and Wildlife Service); state, county, and private (Invasive Species Committees) partners; as well as notable Hawaiian-based scientific organizations including the University of Hawaii, the Hawaii Natural Heritage Program (HINHP), the Bishop Museum, and the Hawaiian Ecosystems at Risk project (HEAR). These organizations recognize the need to work together to capitalize on limited resources and create a synergy within the islands to address critical biodiversity management problems and to provide model solutions for the rest of the world.



Here you can see the area to be covered by PBIN.

PBIN will initially address two areas of critical importance to Hawaii: invasive species and coral reefs. Because of their unique setting, invasive species are the most critical problem for islands, especially in Hawaii. To that end, several projects are underway to support current efforts in Hawaii and also include collaborations with Australian scientists and the team from the California Information Node (CAIN). PBIN is building on the initial foundation established by HEAR. This project has already built a large resource for information related to invasive species in Hawaii. Most members of PBIN are also members of HEAR. The first project will be to upgrade the HEAR system and link it to PBIN.

A second project is being led by the HINHP. As a partner in PBIN, the HINHP is committed to serving as a geospatial data and technology center specializing in the collection, storage, dissemination, and/or synthesis of ecological data for Hawaii and the Pacific Basin. Its first task is the development of an alien species spatial database with associated GIS map layers and an ArcIMS Web site that will show the distribution of the top six invasive species per Hawaiian island. It will also show over 1,500 locations of various incipient weeds on Maui and over 200 survey sites cataloging ant species around the Hilo area on the Big Island. The Web site will be accessible to conservation partners and assist land managers in their efforts to track and control invasive species in Hawaii. HINHP is also developing

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International Connections

I3N Project Initiated

Eleven IABIN countries are receiving grants, software tools, and technical support to inventory their invasive species information as part of the Inter-American Biodiversity Information Network (IABIN) Invasives Information Network (I3N) project. Funding for the grants has been provided by the U.S. State Department. IABIN <www.nbii.gov/iabin> is an international initiative to promote greater coordination among Western Hemisphere countries in the collection, sharing, and use of biodiversity information.

A software tool, the I3N Cataloguer, has been developed by the University of California, Davis. The Cataloguer allows users to build a set of local catalogs describing their country's invasive species information and to output the records from those catalogs in an XML format. Web harvesters or crawlers can then access and integrate the XML records from all participants. A manual describing how to apply Species Analyst to invasives data sets is also being developed. The project is open to anyone who is interested in participating; the I3N Cataloguer and the Species Analyst manual will be available free of charge.

IABIN Proposal To Be Submitted to GEF

The finishing touches have been put on a proposal to the Global Environment Facility (GEF) requesting $650,000 to fund a consultation process that will define the steps to be taken to implement IABIN in conjunction with the Clearing-House Mechanism (CHM). The CHM <www.biodiv.org/chm/> is an international initiative of the Convention on Biological Diversity. The CHM is designed to facilitate technical and scientific cooperation among countries and to provide global access to and exchange of information on biological diversity. Through the infrastructure created by the implementation of IABIN, the CHM would be able to assist the Parties to the Convention to promote scientific and technical cooperation and to exchange information relevant to their efforts to conserve biodiversity. The IABIN proposal was submitted by the World Bank to the GEF Council in early November; the Organization of American States is currently soliciting letters of support for the proposal from the GEF Focal Points in IABIN countries.

REMIB and Species Analyst To Be Integrated

At the recent meeting of the North American Biodiversity Information Network (NABIN) steering committee, the highest priority was given to the integration of the Species Analyst software tool and the data access tools that are central to the Mexican Biodiversity Information Network, REMIB. The NABIN is a project of the Commission for Environmental Cooperation, which is part of the North American Free Trade Agreement. NABIN's objective is to assist institutions and agencies that collect, manage, or use biodiversity data to collaborate on providing broader access to information across North America through an electronic federation model similar to the NBII. Both Species Analyst and REMIB access museum specimen data from geographically distributed databases. Harmonizing the two systems will greatly increase the amount of data available to users of these powerful tools.

Edwards Selected as GBIF Executive Secretary

At the September meeting of the Global Biodiversity Information Facility (GBIF) Governing Board, members agreed to offer the position of Executive Secretary of the new GBIF Secretariat to Jim Edwards of the U.S. National Science Foundation. Jim reports to the Secretariat in Copenhagen, Denmark, in November 2001.

The GBIF <www.gbif.org> will be an interoperable network of biodiversity databases and information technology tools that will enable users to navigate and put to use the world's vast quantities of biodiversity information to produce national economic, environmental, and social benefits. The NBII is the U.S. node for the GBIF.

Information on IABIN projects and activities is available at <www.iabin-us.org>. For information on other international networking initiatives, contact <Barbara_Bauldock@usgs.gov>.

Upcoming Events of NBII Interest

2001	
KMWorld 2001, Santa Clara, CA.	October 29-November 1
American Society for Information Science & Technology (ASIST) Meeting, Washington, DC.	November 3-8
Data Standards from A to Z, hosted by the Organization of Fish & Wildlife Information Managers, Portland, OR.	November 4-7
The Association of Educational Communications & Technology (AECT) International Conference 2001, Atlanta, GA.	November 7-10
Desert Fishes Council, 33rd Annual General Meeting, Alpine, TX.	November 15-18
Southern Forest Science Conference, Atlanta, GA.	November 26-28
4th World Congress of Herpetology, Sri Lanka.	December 2-9
IAFWA Annual Meeting, Wichita, KS.	December 3-7
Online Information 2001, London, England.	December 5-7
2002	
Association for Library and Information Science Education (ALISE) National Conference, New Orleans, LA.	January 15-18
American Library Association Mid-Winter Meeting, New Orleans, LA.	January 18-23
Special Libraries Association Winter Meeting, Chicago, IL.	January 24-26
NFAIS Annual Conference 2002: "Integrating@Internet Speed: Strategies for the Content Community," Philadelphia, PA.	February 24-27

Nodes in the News
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mapping and database procedures, which will help to ensure data integrity for all alien species database management efforts in the state.

The third key project is being led by the Bishop Museum, a recognized leader for taxonomy of species inhabiting the Pacific Basin. Taxonomy is critical to addressing biodiversity and other environmental questions. It is important because it is necessary to know what to call organisms to enable scientific communication and to share knowledge. The biological community currently utilizes the Integrated Taxonomic Information System (ITIS) as its standard for species scientific and common names. The Bishop Museum intends to jointly work with the ITIS Program to identify the best practices, develop improved systems, and develop new methodologies to accelerate the inclusion of species relevant to the Pacific Basin. This will provide managers and scientists within Hawaii and throughout the Pacific Basin timely access to correct names for organisms and will foster improved coordination within ITIS for organisms inhabiting the region. This project will serve as a pilot for emerging plans for regional ITIS Centers that specialize in species relevant to a geographic region. Thus, the specific goals for the project are, first, to assist scientists and biodiversity managers with naming consistency in the region and, second, to provide a pilot for regional implementation of ITIS.

Collaboration with Australia and CAIN will also seek to address the invasive species issue. The USGS Pacific Island Ecosystems Research Center is working in collaboration with Australian scientists to migrate a database that can aid in predicting species invasiveness to the Internet. Projects with CAIN are meant to demonstrate inter-node cooperation. The three projects are the development of a database containing information on "key invasive" species; testing effectiveness of current invasive species models; and compiling data from all expert lists of invasive species in hopes of creating a complete list of what we understand to be the most important invasives.

Coral reefs are also important to islands throughout the Pacific. PBIN collaborators are working within the USGS and with others such as the National Oceanographic and Atmospheric Administration to produce an information system for coral reef research and management.

NBII Metadata Training

Metadata training workshops prepare participants to create metadata.

Typical two-day workshops include discussion of:

- The Federal Geographic Data Committee's (FGDC) Content Standard for Geospatial Metadata and the Biological Data Profile.
- Metadata creation tools.
- FGDC and NBII Clearinghouses.
- Metadata quality issues.
- Metadata submission.

Shorter workshops may exclude computer-based training.

For current information regarding locations, dates, and metadata training content and training workshops, go to <http://www.nbii.gov/datainfo/metadata/training/index.html>, or contact:

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After a second winter of dormancy, the West Nile Virus reappeared for the 2001 season as hundreds of dead crows found this summer — from Canada to Florida, Maryland to Wisconsin — tested positive for the virus. You can get the latest information on the virus via the NBII at <http://www.nbii.gov/issues/invasive/wnv/>.

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